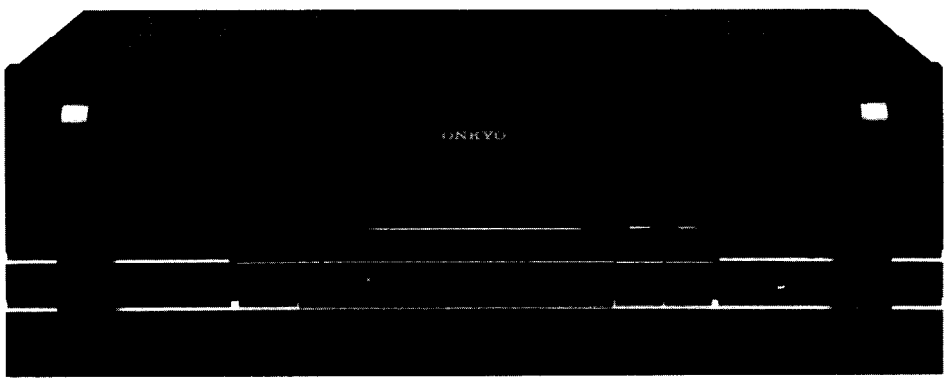
SERIAL No.3316

ONKYO® SERVICE MANUAL

Stereo Power Amplifier

MODEL M-5200·M-5000



UD	120V AC, 60Hz

SAFETY-RELATED COMPONENT WARNING!!
COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

TABLE OF CONTENTS

Specifications 2
Block diagram 2
IC Block diagram 3
Chassis-exploded view 4
Precautions 6
Packing parts list 6
Printed board parts list 7
Printed circuit board view 9
Schematic diagram 11

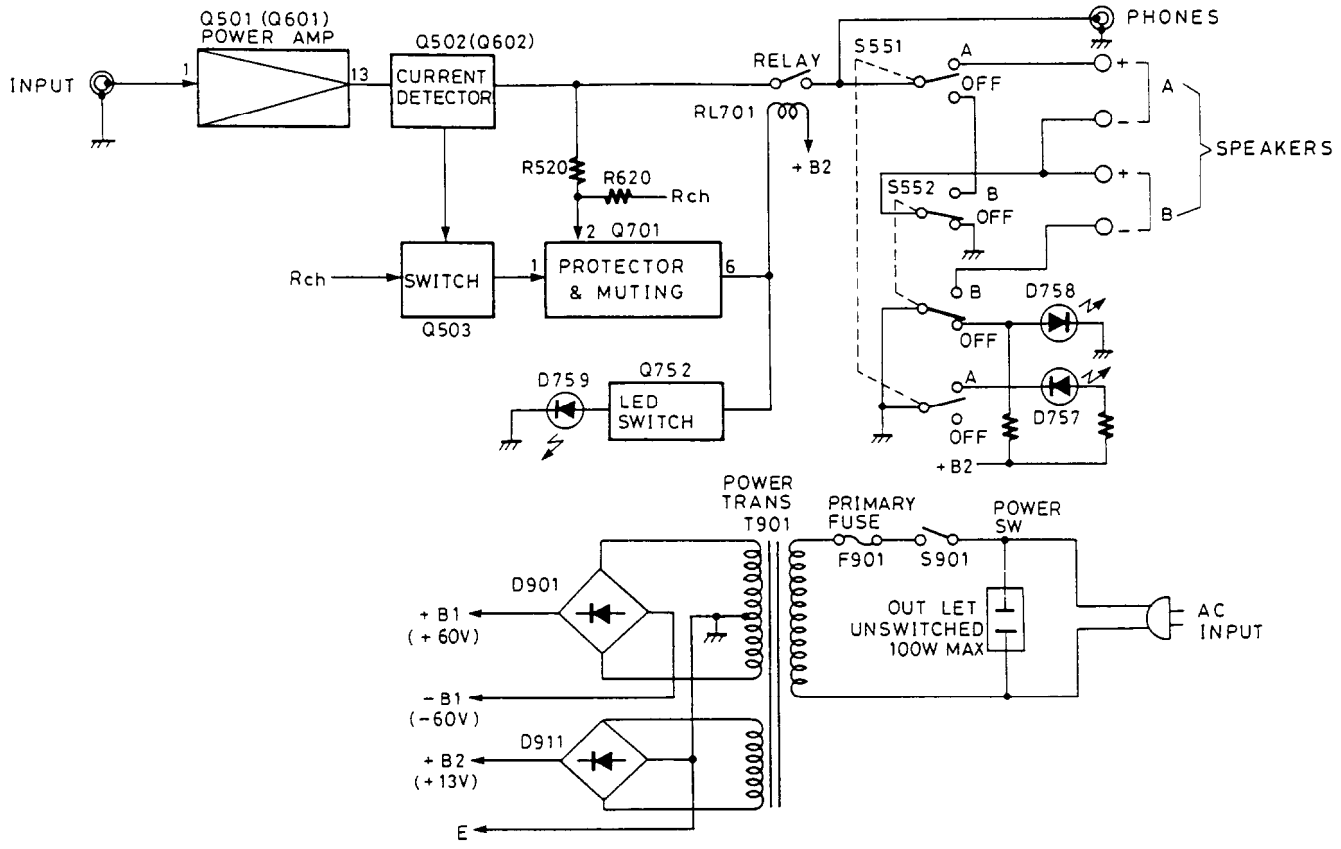
ONKYO
AUDIO COMPONENTS

SPECIFICATIONS

	M-5200	M-5000
Power Output:	150 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20Hz to 20kHz, with no more than 0.09% THD	105 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20Hz to 20kHz, with no more than 0.09% THD
Total Harmonic Distortion:	0.09% at 150 watts	0.09% at 105 watts
IM Distortion:	0.09% at 150 watts	0.09% at 105 watts
Damping Factor:	40 at 8 ohms	40 at 8 ohms
Frequency Response:	5 – 100KHz ±1dB	5 – 100KHz ±1dB
Sensitivity and Impedance:	1V/50kohms	1V/50kohms
Signal to Noise Ratio:	100dB (IHFA-202 1 watt output)	100dB (IHFA-202 1 watt output)
General		
Power Supply:	AC120V, 60Hz	AC120V, 60Hz
Dimensions (W x H x D):	435 x 158 x 289.5mm 17-1/8" x 6-3/16" x 11-13/16"	435 x 158 x 289.5mm 17-1/8" x 6-3/16" x 11-13/16"
Weight:	9.1kg, 20.1 lbs.	7.7kg, 17.0 lbs.

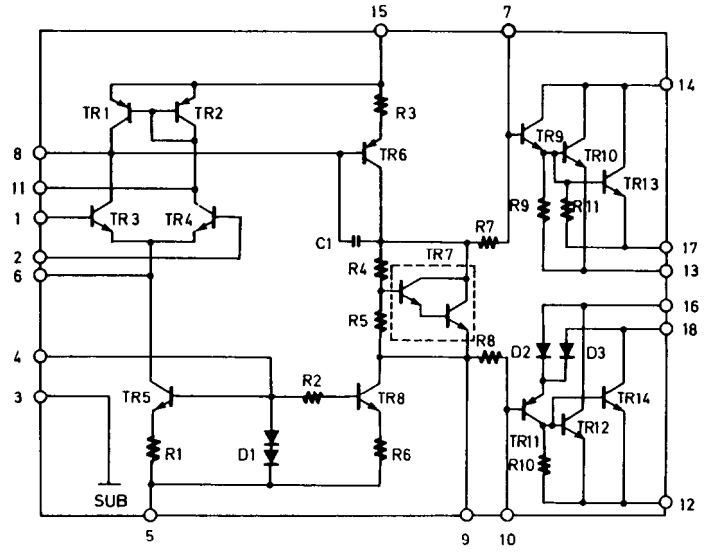
Specifications and features are subject to change without notice.

BLOCK DIAGRAM

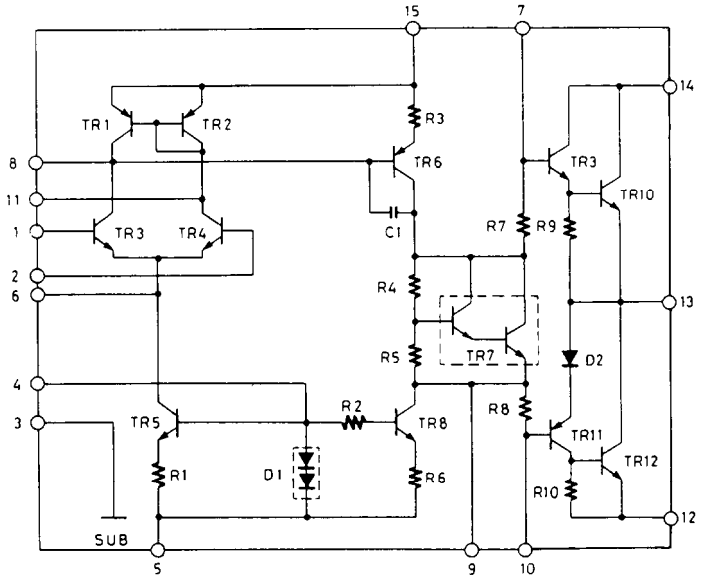


IC BLOCK DIAGRAM

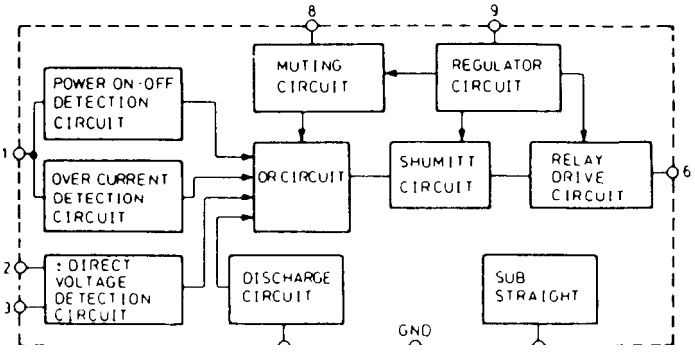
STK4048V (Power Amp.)



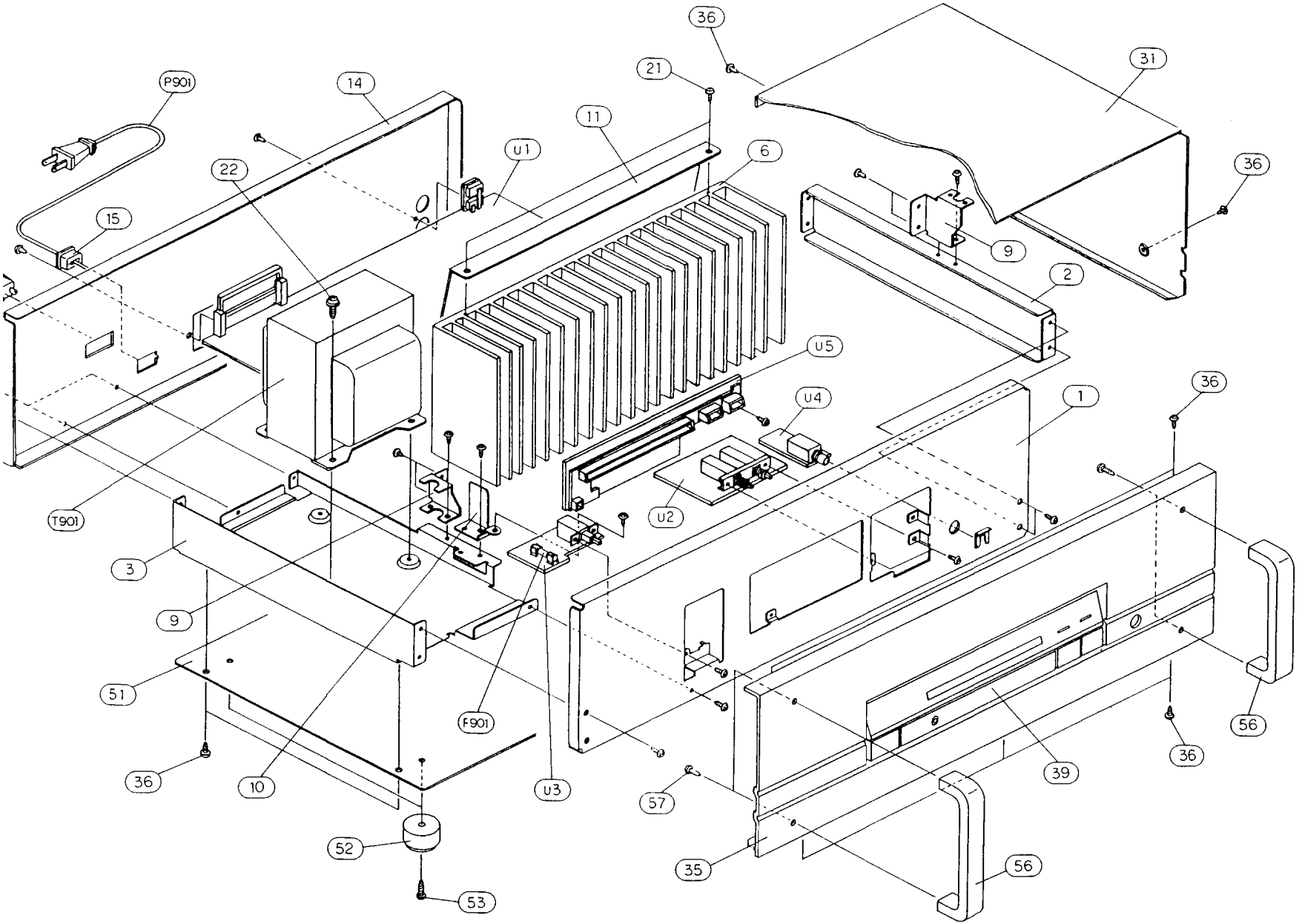
STK4044V (Power Amp.)



TA7317P (Protective Circuit)

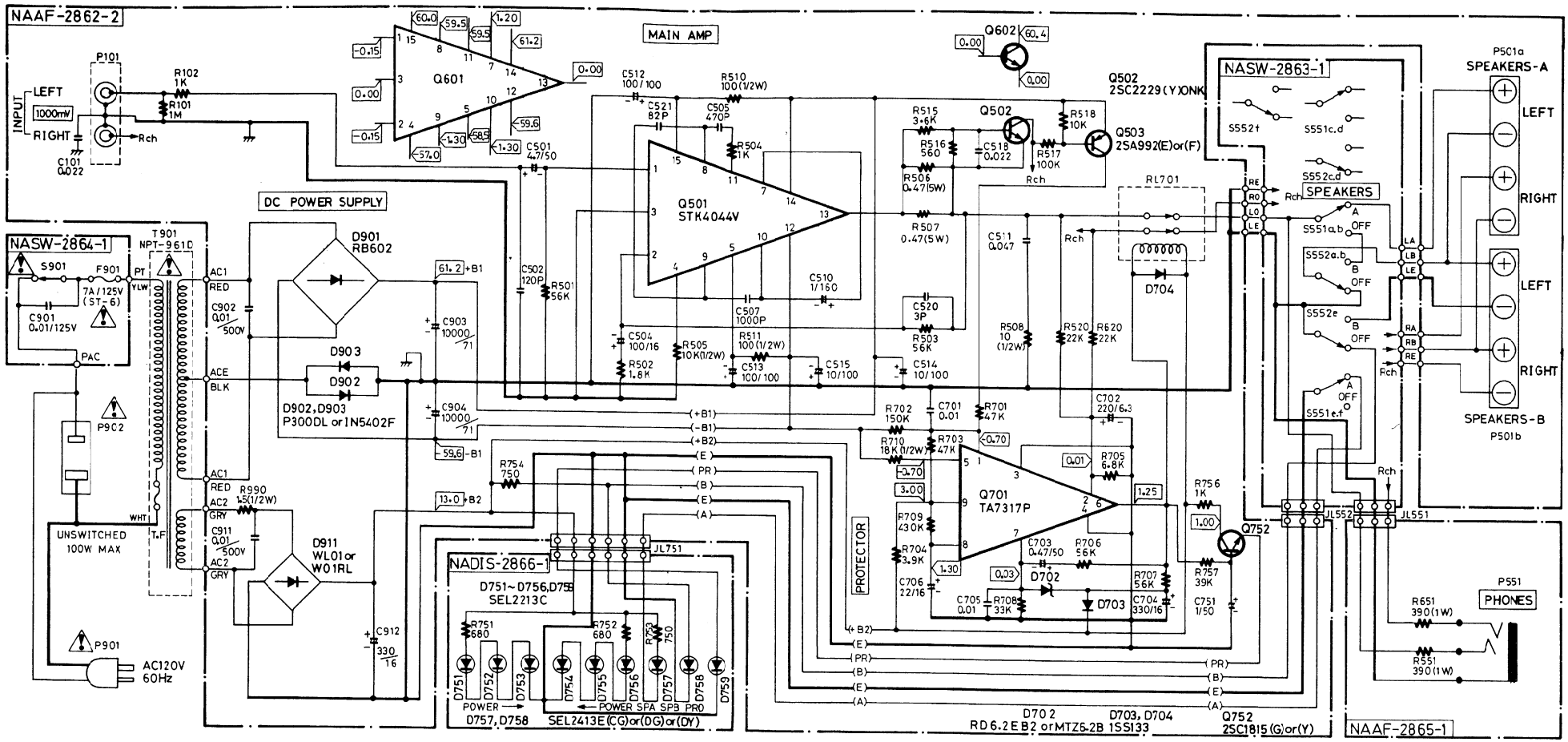


SSIS-EXPLODED VIEW



SCHEMATIC DIAGRAM

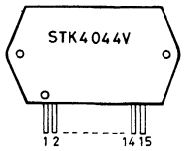
MODEL M-5000



NO	FUNCTION	POSITION
S901	POWER	OFF [ON]
S551	SPEAKERS A	OFF [A]
S552	SPEAKERS B	[OFF] B

2SC1815
2SC2229
2SA992

TA7317P



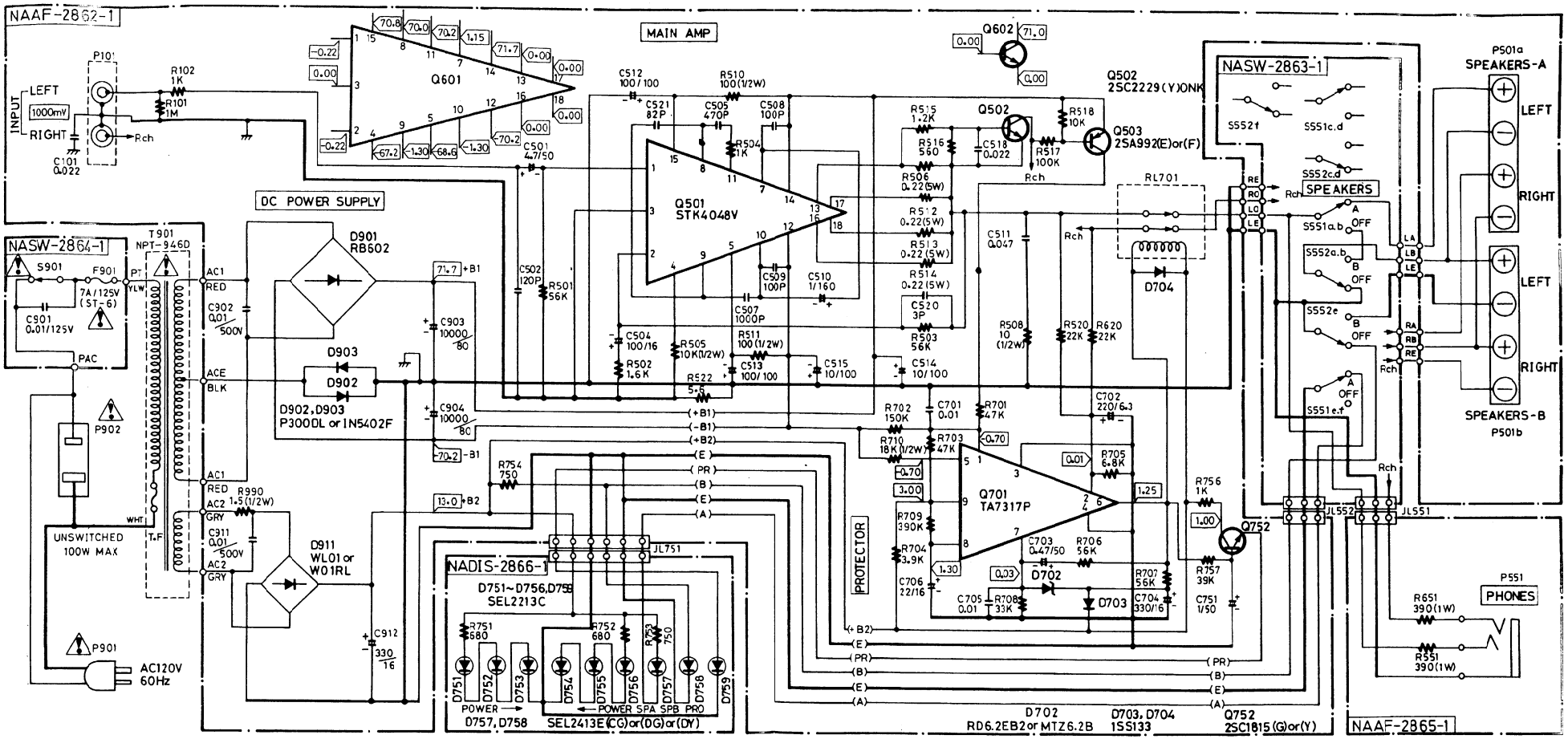
STK-4044V

—NOTES—

- ALL RESISTORS ARE IN OHMS 1/4WATTS or 1/6WATTS UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN μF/50WV UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS(=⊞=)ARE IN μF/WV.
- ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
- VOLTAGE(MEASURED WISH V.T.V.M)⊐V IS DC VOLTAGE.(NO INPUT SIGNAL)
- THE COMPONENTS INDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

SCHEMATIC DIAGRAM

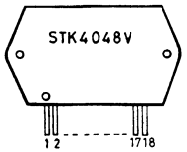
MODEL M-5200



NO	FUNCTION	POSITION
S901	POWER	OFF [ON]
S551	SPEAKERS A	OFF [A]
S552	SPEAKERS B	[OFF] B

2SC1815
2SC2229
2SA992

TA7317P



STK-4048V

NOTES

- ALL RESISTORS ARE IN OHMS 1/4WATTS or 1/6WATTS UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN μF/50WV UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS(=⊞=)ARE IN μF/WV.
- ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
- VOLTAGE(MEASURED WISH V.T.V.M)⊐V IS DC VOLTAGE,(NO INPUT SIGNAL)
- THE COMPONENTS INDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

CHASSIS-EXPLODED VIEW-PARTS LIST

M-5200

REF.NO.	PART NO.	DESCRIPTION
1	27110331A	FRONT BRACKET
2	27115221	SIDE BRACKET
3	27130404-2B	BRACKET (PT)
6	27160200A	HEATSINK
9	27141020C	BRACKET (HE)
10	27141114B	BRACKET (S)
11	27141115B	BRACKET (L)
14	27121221	BACK PANEL
15	27300750	BUSHING (CORD)
21	831130088	TAP-TIGHT SCREW 3TTW+8B
22	830440089	TAP-TIGHT SCREW 4TTC+8CBC
31	28184353A	TOP COVER
35	27211064	FRONT PANEL
36	834430088	TAP-TIGHT SCREW 3TTS+8BBC
39	28323621	KNOB AS, GUID
51	27170238A	BOTTOM BOARD
52	27175221A	LEG
53	834430088	TAP-TIGHT SCREW 3TTS+8BBC
56	28158035	HANDLE
57	830440109	TAP-TIGHT SCREW 4TTC+10CBC
⚠ T901	2300174A	POWER TRANSFORMER NPT-946D
⚠ P901	253123 or 253136 or 253140 or 253146	POWER SUPPLY CABLE AS-UC-6#18
⚠ P902	25050290	AC OUTLET NSCT-2P118T
⚠ F901	252052	FUSE 7A (ST-6)
U1	1A044562-1	NAAF-2862-1, POWER AMP. PC BOARD ASS'Y
U2	1A044563-1	NASW-2863-1, SPEAKERS SWITCH PC BOARD ASS'Y
U3	1A044564-1	NASW-2864-1, POWER SWITCH PC BOARD ASS'Y
U4	1A044565-1	NAAF-2865-1, PHONES PC BOARD ASS'Y
U5	1A044566-1	NADIS-2866-1, DISPLAY PC BOARD ASS'Y
U6	1A044567-1	NAETC-2867-1, PC TERMINAL PC BOARD ASS'Y

M-5000

REF.NO.	PART NO.	DESCRIPTION
1	27110331A	FRONT BRACKET
2	27115221	SIDE BRACKET
3	27130404-2B	BRACKET (PT)
6	27160207A	HEATSINK
9	27141020C	BRACKET (HE)
10	27141114B	BRACKET (S)
11	27141137A	BRACKET (L)
14	27121222	BACK PANEL
15	27300750	BUSHING (CORD)
21	831130088	TAP-TIGHT SCREW 3TTW+8B
22	830440089	TAP-TIGHT SCREW 4TTC+8CBC
31	28184353A	TOP COVER
35	27211065	FRONT PANEL
36	834430088	TAP-TIGHT SCREW 3TTS+8BBC
39	28323621	KNOB AS, GUID
51	27170238A	BOTTOM BOARD
52	27175221A	LEG
53	834430088	TAP-TIGHT SCREW 3TTS+8BBC
56	28158035	HANDLE
57	830440109	TAP-TIGHT SCREW 4TTC+10CBC
⚠ T901	2300226	POWER TRANSFORMER NPT-941D
⚠ P901	253123 or 253136 or 253140 or 253146	POWER SUPPLY CABLE AS-UC-6#18
⚠ P902	25050290	AC OUTLET NSCT-2P118T
⚠ F901	252052	FUSE 7A (ST-6)
U1	1A045562-2	NAAF-2862-2, POWER AMP. PC BOARD ASS'Y
U2	1A045563-2	NASW-2863-2, SPEAKERS SWITCH PC BOARD ASS'Y
U3	1A044564-1	FNASW-2864-1, POWER SWITCH PC BOARD ASS'Y
U4	1A044565-1	NAAF-2865-1, PHONES PC BOARD ASS'Y
U5	1A044566-1	NADIS-2866-1, DISPLAY PC BOARD ASS'Y
U6	1A045567-2	NAETC-2867-2, PC TERMINAL PC BOARD ASS'Y

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PARTS NUMBER SPECIFIED.

PRECAUTIONS

1. Replacing the fuses

For continued protection against risk fire, replace only with same type and same rating fuse.

CIRCUIT NO.	PARTS NO.	DESCIRPTION
F901	252052	7A (ST-6), Primary fuse

2. Insulation resistance mesurement

Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel. Specifications; More than 10MΩ at 500V.

PACKING PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	
A851	29051862	MASTER CARTON BOX [M5200]	
A851	29051864	MASTER CARTON BOX [M5000]	
A852	29091152B	PAD, LEFT	
A853	29091153B	PAD, RIGHT	
A855	29100033A	750×500mm, POLY-VINYL BAG	
A856	282301	SEALING HOOK	
A857	260012	DAMPLON TAPE	
A858	261504	PAPER TAPE	
A868	29360778	LABEL (FLASH)	[N]
	ACCESSARY BAG ASS'Y		
A901	29341377	INSTRUCTION MANUAL	
A902	2010098A	CONNECTION CABLE	
A903	29100006A	350×250mm, POLY-VINYL BAG FOR ACCESSARY	
A904	29365019	WARRANTY CARD	[N]
A905	29358002F	SERVICE STATION LIST	[N]

NOTE

[N]: ONLY U.S.A. MODELS
[M5200]: ONLY M-5200 MODELS
[M5000]: ONLY M-5000 MODELS

PRINTED CIRCUIT BOARD PARTS LIST

M-5200

POWER AMP. CIRCUIT PC BOARD (NAAF-2862-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q501, Q601	222059	STK4048V
Q701	222584	TA7317P
	Transistors	
Q502, Q602	2211639	2SC2229Y(ONK)
Q503	2211792 or	2SA992E or
	2211793	2SA992F
Q752	2211255 or	2SC1815GR or
	2211254	2SC1815Y
	Diodes	
D702	2239492 or	RD6.2EB2 or
	2243162	MTZ6.2B
D703, D704	223163	1SS133
D901	223898F	RB602
D902, D903	223897F or	P300DL or
	22380003F	1N5402F
D911	223862 or	WL01 or
	223890	W01RL
	Capacitors	
C501, C601	3500093	4.7μF, 50V, Elect.
C504, C604	354741019	100μF, 16V, Elect.
C510, C610	354700109	1μF,160V, Elect.
C511, C611	371124734	0.047μF, 50V, Mylar
C512, C513	354791019	100μF, 100V, Elect.
C612, C613		
C514, C515	354791009	10μF, 100V, Elect.
C614, C615		
C702	354722219	220μF, 6.3V, Elect.
C703	354784799	0.47μF, 50V, Elect.
C704	354743319	330μF, 16V, Elect.
C706	354742209	22μF, 16V, Elect.
C751	354780109	1μF, 50V, Elect.
C903, C904	3504204	10000μF, 80V, Elect.
C912	354743319	330μF, 16V, Elect.
	Resistors	
R505, R605	442521034F	10kΩ, 1/2W, Metal oxide film
R506,R507	4000076	0.22Ω, 5W, Metal plate
R606,R607		
R508, R608	441521004F	10Ω, 1/2W, Metal oxide film
R510, R511	442521014F	100Ω, 1/2W, Metal oxide film
R610, R611		
R512~R514	4000076	0.22Ω, 5W, Metal plate
R612~R614		
R710	442521834F	18kΩ, 1/2W, Metal oxide film
R990	442520154F	1.5Ω, 1/2W, Metal oxide film
	Relay	
RL701	25065275	NRL-2P5A-DC12-38
	Terminals	
P101	25045211	NPJ-2PDBL91, Input
P501	25060093	NTM-8PDML34, Output
	Bracket	
	27141059	Washer

SPEAKER SWITCH CIRCUIT PC BOARD (NASW-2863-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switches	
S551, (S552)	25035549	NPS-262-L511

POWER SWITCH CIRCUIT PC BOARD (NASW-2864-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitor	
C901	3500065A	0.01μF, AC400V/125V, IS
	Switch	
S901	25035550	NPS-111-1512P
	Fuse holders	
	250113	SN5051

PHONES CIRCUIT PC BOARD (NAAF-2865-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors	
R551, R651	441623914	390Ω, 1W, Metal oxide film
	Jack	
P551	25045187	HLJ-0541-01-010

DISPLAY CIRCUIT PC BOARD (NADIS-2866-1)- PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D751~D756	225141	SEL2213C
D759		
D757, D758	225137CG or	SEL2413ECG
	225137DG or	SEL2413EDG
	225137DY	SEL2413EDY
	Holder	
	27190510A	(LED)

PRINTED CIRCUIT BOARD PARTS LIST

M-5000

POWER AMP. CIRCUIT PC BOARD (NAAF-2862-2)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q501, Q601	222051	STK4044V
Q701	222584	TA7317P
	Transistors	
Q502, Q602	2211639	2SC2229Y(ONK)
Q503	2211792 or	2SA992E or
	2211793	2SA992F
Q752	2211255 or	2SC1815GR or
	2211254	2SC1815Y
	Diodes	
D702	2239492 or	RD6.2EB2 or
	2243162	MTZ6.2B
D703, D704	223163	1SS133
D901	223898F	RB602
D902, D903	223897F or	P300DL or
	22380003F	1N5402F
D911	223862 or	WL01 or
	223890	W01RL
	Capacitors	
C501, C601	3500093	4.7μF, 50V, Elect.
C504, C604	354741019	100μF, 16V, Elect.
C510, C610	354700109	1μF, 160V, Elect.
C511, C611	371124734	0.047μF, 50V, Mylar
C512, C513	354791019	100μF, 100V, Elect.
C612, C613		
C514, C515	354791009	10μF, 100V, Elect.
C614, C615		
C702	354722219	220μF, 6.3V, Elect.
C703	354784799	0.47μF, 50V, Elect.
C704	354743319	330μF, 16V, Elect.
C706	354742209	22μF, 16V, Elect.
C751	354780109	1μF, 50V, Elect.
C903, C904	3504191	10000μF, 71V, Elect.
C912	354743319	330μF, 16V, Elect.
	Resistors	
R505, R605	4425210341F	10kΩ, 1/2W, Metal oxide film
R506, R507	4000080	0.47Ω, 5W, Metal plate
R606, R607		
R508, R608	4415210041F	10Ω, 1/2W, Metal oxide film
R510, R511	4425210141F	100Ω, 1/2W, Metal oxide film
R610, R611		
R710	4425218341F	18kΩ, 1/2W, Metal oxide film
R990	4425201541F	1.5Ω, 1/2W, Metal oxide film
	Relay	
RL701	25065275	NRL-2P5A-DC12-38
	Terminals	
P101	25045211	NPJ-2PDBL91, Input
P501	25060093	NTM-8PDML34, Output
	Bracket	
	27141059	Washer

SPEAKER SWITCH CIRCUIT PC BOARD (NASW-2863-2)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switches	
S551, (S552)	25035549	NPS-262-L511

POWER SWITCH CIRCUIT PC BOARD (NASW-2864-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitor	
C901	3500065A	0.01μF, AC400V/125V, IS
	Switch	
S901	25035550	NPS-111-1512P
	Fuse holders	
	250113	SN5051

PHONES CIRCUIT PC BOARD (NAAF-2865-1)-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors	
R551, R651	441623914	390Ω, 1W, Metal oxide film
	Jack	
P551	25045187	HLJ-0541-01-010

DISPLAY CIRCUIT PC BOARD (NADIS-2866-1)- PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diodes	
D751~D756	225141	SEL2213C
D759		
D757, D758	225137CG or	SEL2413ECG
	225137DG or	SEL2413EDG
	225137DY	SEL2413EDY
	Holder	
	27190510A	(LED)